

Ex. No: 9 Subnetting in CISCO packet tracer

Aim:
Implementation of subnetting
in CISCO packet tracer simulator.

Creating A network topology

The first step in implementing classes IP & subnetting is to create a network topology in packet tracer. To create a network topology in packet tracer, select the "New" button in the top left corner, then select "Network" and "Generic".

Adding the device:

Once we have created our network topology, we can add devices to it. Here, we will be adding routers, switches, and PCs.

Subnetting:

To subnet the network address of $192.168.1.0/24$ to provide enough space for at least 5 addresses for end devices, the switch, and the router.

Configure the devices:

The IP addressing for the network shown in the topology

- Router R1
- Gigabit Ethernet 0/0: 192.168.1.1
- Gigabit Ethernet 0/1: 192.168.2.1
- Switch S1:
 - Fast Ethernet 0/1: 192.168.1.0/27
 - PC1: 192.168.1.11
 - PC2: 192.168.1.12
 - PC3: 192.168.1.13
 - PC4: 192.168.1.14
 - PC5: 192.168.1.15
 - Fast Ethernet 0/2: 192.168.2.0/27
 - PC1: 192.168.2.11
 - PC2: 192.168.2.12
 - PC3: 192.168.2.13
 - PC4: 192.168.2.14
 - PC5: 192.168.2.15
- Router R2:
 - Fast Ethernet 0/0: 192.168.3.1
 - Fast Ethernet 0/1: 192.168.4.1
- Switch S2:

Configuring the devices:

Start by configuring the router. Right-click on the router, and select CLI. This will open the command-line interface (CLI) for the router. Enter the following commands


```
#enable
# configure terminal
# interface FastEthernet 0/0
# ip address
# no shutdown
# exit
```

```
interface FastEthernet 0/1
ip address
```

```
no shutdown
exit
```

Replace the IP address and subnet with your desired IP address and subnet mask.

Configuring Switches:

```
enable
configure terminal
interface f0/1
exit
interface f0/2
switchport mode access
exit
```

Configuring PCs:

```
Click PC
Config
Fast Ethernet
Assign IP, subnet mask, and default gateway
```


Testing the network.

On each PC → Open command prompt →
Ping other PCs or router IPs

Student Observation:

a) Understanding of Subnetting:

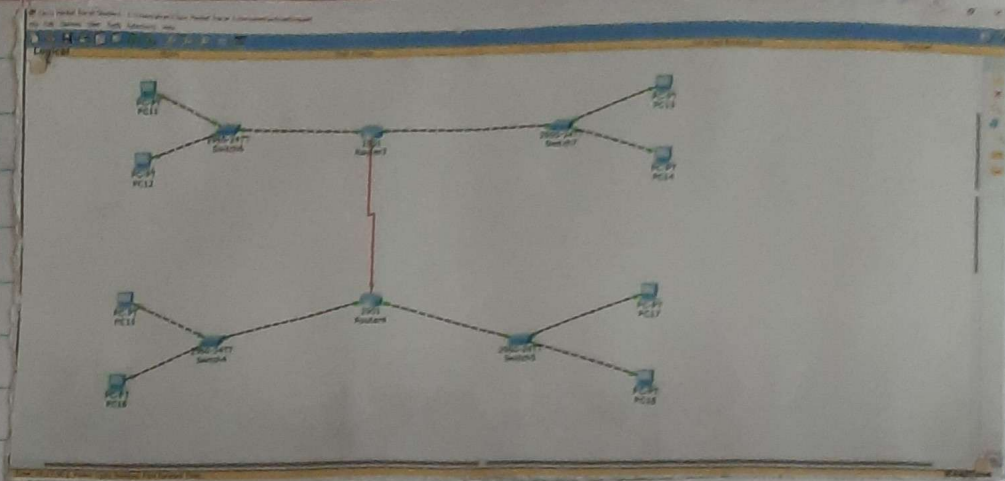
Subnetting divides a large network into smaller, manageable sub-networks to improve efficiency and security.

b) Advantages of implementing subnetting:

Efficient IP address usage, better network performance, improved security, and easier management.

c) College implementation:

Stu Find out whether subnetting is implemented in your college. If yes, Draw and list down the subnets used with ip address



Result:

Implementation of Subnetting in Cisco packet Tracer & simulator is implemented